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ABSTRACT

A study of 22 elementary, middle, and secondary students with disabilities investigated the adequacy of Individualized Education Program (IEP) statements of present level of functioning and goals related to peer interactions. The study also evaluated the extent to which general and special education teachers employed teaching strategies that fostered social interactions, and assessed whether instruction was aligned with the IEP's characterization of pupil social development. A principal components analysis indicated that the IEPs accurately described the peer interactions of students with disabilities. Independent measures by observers, the students themselves, and certain teacher measures were generally consistent with the IEP's statement of present level of functioning and peer interaction goals. The research also found that providing accurate information in the IEP about level of functioning and goals regarding peer interaction was not sufficient to ensure that instructional practices were designed to meet those needs. Students whose IEPs identified peer interaction needs did not receive greater access to instructional strategies that afford peer interaction. General education settings were found to be somewhat more likely than special education settings to employ teaching strategies that foster peer interaction, providing some support for claims that inclusion fosters social integration. (Contains 37 references.) (CR)

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Do General and Special Education Teachers Foster the Peer Interactions of Students with Disabilities?

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Abstract

Educators and parents have long been concerned that schooling enhance the social competence of students with disabilities. Because of the IEP's central role in organizing appropriate social education, this research examined the adequacy of IEP statements of present level of functioning and goals related to peer interactions. Because advocates argue that integrated settings foster peer interactions, this research then documented the extent to which general and special education teachers employed teaching strategies that may foster social interactions; and assessed whether instruction aligned with the IEP's characterization of pupil social development. Data sources included the IEPs of 22 pupils with disabilities, observations of these pupils and their teachers in content area, special area, and special education settings; and teacher and pupil interviews. A principal components analysis indicated that the IEP was accurate with regard to peer interactions, in that the IEP was corroborated by other, independent measures of student social competence. This analysis also revealed that use of instructional practices to foster peer interaction was limited and did not align with the IEP. General education settings were somewhat more likely than special education settings to employ teaching strategies that foster peer interaction, providing some support for claims that inclusion fosters social integration.

Do General and Special Education Teachers Foster the Peer Interactions of Students with Disabilities?

Students with disabilities are often judged to lack peer interaction skills (e.g., Gresham, 1992). While typical 9 year olds report nine to ten friends within their social network (Feiring & Lewis, 1989), many students with disabilities report difficulty in developing and maintaining relationships with others (Mellard & Hazel, 1992). Yet peer interaction skills are necessary for success in the work place (Secretary's Commission on Achieving Necessary Skills, 1992) and desired in order for individuals to lead productive lives (U.S. Department of Education, 1994).

This study employed two criteria to evaluate the extent to which teachers in naturally-occurring school settings fostered the peer interaction skills of students with disabilities. The first criterion was whether instruction to foster peer interactions aligned with two components of the student's IEP: the present level of functioning and individual goals related to peer interactions. Alignment of instruction with the IEP's present level of functioning and goals was selected as a criterion because one key purpose of the IEP is to establish standards with which to evaluate pupil progress (Epstein, Patton, Polloway, & Foley, 1992).

The second criterion used in this research was the *extent* to which teaching activities were used to foster peer interactions. This criterion was selected because advocates and recent court rulings favor placement of students with disabilities in general education settings. It is argued that general class placement provides greater opportunity

for peer interaction than does a special education placement. Yet there is little documentation of the extent to which teachers in naturally-occurring general or special education classrooms foster peer interactions (Vaughn & Haager, 1994).

Peer Interaction and the IEP

Peer interaction goals are an expected part of the Individual Education Plan (IEP) for many students with disabilities. However, IEPs are often inaccurate when reporting present level of functioning and goals in academic (Schenck, 1980; Smith, 1990) and social (Fiedler & Knight, 1986; Reiher, 1992) domains. Two limitations can be discerned in the research examining the adequacy of the IEP's present level of functioning and goals in social domains. First, existing studies included only students with behavioral disabilities, and excluded other disability types. Second, adequacy was defined as consistency of the IEP's present level of functioning with the IEP's goals, or with diagnostic reports at initial classification. Research has not yet established whether the IEP's present level of functioning and goals are adequate subsequent to classification. More importantly, research has not examined whether the IEP's present level of functioning and goals are consistent with observed pupil behavior in school settings. Therefore, a first purpose of this study was to examine the adequacy of the IEP's statement of present level of functioning and goals in peer interaction. We judged the adequacy of IEPs of students with diverse disabilities, using classroom observation as well as teacher and student report. Establishing the adequacy of the IEP was also a prerequisite to our examination of whether instruction aligned with student needs and

goals related to peer interactions.

Despite the importance of the IEP in framing an appropriate education, the instruction provided to students with disabilities often does not reflect their individual needs (Wesson & Deno, 1989), nor does it align with IEP goals (Lynch & Beare, 1990). However, existing research on the alignment of the IEP with instruction is restricted to academic domains (Lynch & Beare, 1990). Research is needed that documents whether social IEP goals are reflected in instructional practices. A second purpose of the present study was to examine whether teaching practices that may enhance peer interactions were provided appropriately; that is, in accordance with students' present level of functioning and goals in peer interaction, as specified on the IEP. We also examined whether instruction in the social domain aligned with independent observers' and teachers' ratings of pupils' social needs.

Teaching Strategies to Foster Peer Interactions

Interventions designed to foster peer interaction skills can be provided in special area, content area, or special education settings. Integrated educational experiences have been advocated, in part, because they provided increased opportunities for interaction between disabled and nondisabled peers (Dunn, 1968; Lipsky & Gartner, 1992). In fact, recent court decisions justify placement in integrated settings because of the assumption that these settings foster peer interactions for students with disabilities (VanDyke, Stallings, & Colley, 1995). However, the evidence supporting this claim is equivocal.

Proximity within the general education setting has been related to increases in social

outcomes, including appropriate peer interactions (Madden & Slavin, 1983). However, often this research has focused on specific interventions designed to develop social skills and/or alter the attitudes of general education teachers and students: e.g., cooperative learning (Fox, 1989; Jellison, Brooks, & Huck, 1984); structured play groups (Guralnick & Groom, 1988); or initiation strategies (Strain & Odom, 1986). According to several authors (Salisbury, Gallucci, Palombaro, & Peck, 1995; Vaughn & Haager, 1994), little information has been gathered describing and/or comparing how teachers in *naturally-occurring* special and general education settings (i.e., settings where no special intervention has been imposed by researchers) foster the peer interactions of students with disabilities.

Sharing ordinary places is important (Strully & Strully, 1985) but may not be sufficient to develop peer interaction skills (Hallenbeck & Kauffman, 1995). Students with disabilities in inclusionary settings were less socially accepted than their peers (Sale & Carey, 1995). This lack of acceptance may be explained by the finding that typical general education teachers do little to foster peer interaction (Jellison et al., 1984; Phelan, Yu, & Davidson, 1994). As summarized by Phelan et al., general education "teachers fail to take advantage of students' orientations toward their friends. For example, encouraging students to work in groups, fostering discussions in which students talk and listen to each other, and encouraging students to help one another with class assignments are pedagogical methods infrequently used" (p.437).

Instead of teaching social competencies directly, teachers may rely on the presence

of peer models to foster social development among students with disabilities. Yet analysis of the vicarious learning literature suggests that peer models are not sufficient, and that without "explicit social instruction" students with disabilities are unlikely to improve their social competence (p. 64, Hallenbeck & Kauffman, 1995).

On a more positive note, Salisbury et al. (1995) identified a set of strategies that general education teachers in naturally-occurring classrooms used to facilitate social interaction between students with moderate to severe disabilities and their peers: cooperative grouping, collaborative problem solving, peer tutoring, and informal interaction time. However, this study was limited in several ways. First, it did not establish whether general education classrooms were more proficient at fostering peer interactions than were special education settings. Further, it did not report the frequency with which teachers used the identified strategies. Since social skills development requires sustained intervention (Walker, Schwarz, Nippold, Irvin, & Noell, 1994), it is important to establish whether strategies are used with sufficient frequency to be effective in fostering peer interaction skills among students with disabilities. Finally, the sample was limited to only teachers from two elementary schools, and students with moderate or severe disabilities.

The final purpose of the present study was to add to the limited research documenting and comparing the extent to which special and general education teachers use activities that may foster peer interactions of students with disabilities. Our work goes beyond previous studies in that the sample includes students with diverse disabilities as

well as special and general education teachers across a range of grades and subject matters. Most importantly, this work contributes in that it used direct observation of instructional strategies and peer interactions. Despite of the importance attributed to social competence, Pearl (1992) noted that few studies have used direct, observational measures of "peer interactions in the regular school classroom " (p.102).

Summary and Questions

To accomplish our purposes, this research examined the peer relationships, goals, and instruction of students with disabilities in naturally-occurring special and general education settings. We observed each of 22 students with disabilities for five entire school days. We also reviewed student IEPs, and interviewed students and their teachers. These diverse data allowed us to examine three questions.

The first question addressed by this research was "does the IEP adequately characterize student peer-interaction skills?" That is, were IEP statements of students' present level of functioning and goals related to peer interaction corroborated by independent observations of pupil social competence? To corroborate the IEP, we compared it to observers' ratings of student peer relationships in classrooms, hallway, and cafeteria; teacher's ratings of students; and student self-report data. These data sources provided a multi-dimensional view of IEP adequacy.

The next question we addressed was "is there a discernable relationship between the IEP's characterization of the present level of functioning and goals in peer interaction, and the use of teaching strategies that might foster peer interactions?" While all students can benefit from instruction designed to foster peer interaction skills, such activities are

particularly critical for students with peer interaction goals. Were students of limited development in peer interaction provided with educational activities designed to foster peer interaction? We examined the issue of whether observed instruction was appropriate to student peer interaction needs across content area, special area, and special education settings.

Finally, we asked "to what extent do teachers in naturally occurring educational environments employ teaching strategies that foster the acquisition of peer interaction goals?" Teachers' use of four strategies to foster peer interactions, as well as their tendency to include students with disabilities were compared across content area, special area, and special education settings. Teachers were observed in elementary, middle, and high schools.

Method

Overview of the Approach to Data Collection and Analysis

Data used in this research were collected as a part of a larger study that addressed the range of school experiences of 22 students with disabilities. This research used exploratory and descriptive techniques from both qualitative and quantitative traditions, an integration used profitably in several recent studies (Blustein , Phillips, Finkelberg, & Jobin-Davis, 1995; Gelzheiser, Slesinski, Meyers, Pruzek, Douglas, & Lewis, 1996).

Consistent with a qualitative tradition, this research relied on multiple and in-depth measures of relatively few subjects. This approach allowed us to employ direct observation of target students and the instruction they received, as well as interviews and document analysis. Specifically, to characterize the IEP's statement of present level of

functioning and goals related to peer interaction, students' IEPs were collected and coded. To confirm or disconfirm the adequacy of the IEP, five days of direct observations were made of each target student's peer interactions in classroom, hallway, and cafeteria settings. Additional data related to target student social competence were derived from teacher and student interviews. To characterize the extent that teachers used activities to foster peer interactions with target students with disabilities, direct observations were made of the target students' special education, content area, and special area teachers. The multiple data sources used in this study are detailed in later sections.

Like Salisbury et al. (1995), we were interested in discovering the teaching strategies employed to foster peer interactions in naturally-occurring settings. Because there was little previous work to guide us in the development of a pre-specified coding system (the Salisbury et al. study was published after we had collected our data) we chose to use the qualitative strategy of open-ended narratives for classroom observations. We also utilized the qualitative strategy of expert observers who became familiar with the culture of the two schools where they conducted observations. However, because we were using three observers across six buildings, it was important to insure consistency and thoroughness across sites. A semi-structured system of previously identified broad categories of interest was used to ensure comparability while collecting detailed and unconstrained data about teaching strategies. Observations of the target students' peer interactions in classroom, hallway, and cafeteria settings were similarly semi-structured. Observation procedures are detailed below.

Our goal with teacher and student interviews was also to systematically elicit detailed and unconstrained responses. Interviews employed semi-structured questions, in a manner that was thorough and consistent across interviewers. These data gathering procedures are later described in more detail.

Consistent with the exploratory nature of this study, we employed the qualitative approach of deriving from the data specific variables related to student peer interaction skills, and teaching strategies to foster peer interaction. Because of the large number of variables, these qualitative data were summarized in quantitative form in order to better understand the emerging themes and relationships. An exploratory quantitative methodology, principal components analysi (Harris, 1985), was used to determine the alignment of the IEP's present level of functioning and goals for peer interaction with other, independent measures of target student social competence, and with teachers' use of instructional strategies to foster peer interaction. Descriptive statistics were used to characterize the extent to which special education, content area, and special area teachers in naturally occurring settings used instructional strategies that foster social development.

Sample

Pupils. Data were collected in two predominantly white, suburban school districts in the Greater Capital District of New York. One district had set inclusion of students with disabilities as a priority; the other had not. In each district, Pupil Personnel Office staff nominated four elementary, four middle school, and four high school students with disabilities as representing the range of special education programs available in each

building. In each high school, one pupil dropped out of school, leaving a total sample of 22 pupils.

Subject characteristic data are summarized in Table 1. The sample consisted of pupils identified (on their IEPs) as exhibiting a range of disabilities.

In Table 1, the sample is divided into two groups of students, 1) those whose present level of functioning related to peer interaction was characterized as appropriate and 2) those characterized as generally or sometimes inappropriate. This decision was based on the IEP's statement of the pupil's present level of functioning (the procedures used in this coding are described in greater detail below).

Table 1 indicates that students were drawn from self-contained , resource, and related-services-only placements. In New York State, a self-contained placement is defined as 50% or more time in a special education class. All of the self-contained pupils in our sample spent one or more periods in general education classes. The self-contained classes included a primary class designed to foster language and conceptual development (two students), an elementary and a high school class for youth with emotional needs (one student from each class), three middle/junior high and two high school academic skills development classes (four middle school students and two at the high school level). It was also noted from the IEP whether or not the student was assigned a one-to-one aide.

Insert Table 1 about here

Teachers. Each of the 22 target students with disabilities was observed for five school days, and classroom observation data were obtained for all of the teachers that the target student worked with, except where teacher absence or student program interfered. Because students varied in the amount of time spent in general education classes, a uniform set of teachers was selected for analysis, from the larger pool of data. The set was comprised of one special educator, one content area general educator (reading or elementary classroom, language arts, science, or social studies) and one special area general educator (music, art, technology, physical education, or home and careers). Content and special area instructors were selected on the basis of the number of observations available (five observations was the most desirable) and subject matter. Content area classes selected most frequently were social studies or language arts with reading instruction being the most common choice at the elementary level. For those students who had more than one special educator (this was especially common at the middle school level), the number of observations was used to select the special education teacher.

Missing Data. In several instances it was not possible to select a complete set of three teachers. Two students (both elementary) were not observed in special education settings. One of these student received related services only, and the other was assigned to a resource room setting in September but no teacher was hired until April, when our observations concluded. One high school special education teacher was observed but was not interviewed. Two students (one elementary and one high school) received no content

area instruction. One other content area teacher and three special area teachers were observed but were not interviewed.

Two students were not observed in the cafeteria. One of these was a kindergartner who did not receive lunch; the other was a high school student who traveled to a vocational program during the lunch break.

Finally, one student's IEP was incomplete. It lacked goals and objectives.

Classroom, Hallway, and Cafeteria Observations

Observation Procedures. Three observers were each assigned to observe one level (elementary, middle, and high school). The elementary and high school observers had taught at those levels. The middle school observer had experience as special education teacher and administrator.

During the 1993-1994 school year, each of the 22 target students with disabilities was observed for the full school day on five separate occasions between November and April. During these five days, target students were followed at a distance in school hallways and observed in the cafeteria. While an important indicator of social competence, we did not observe students in play ground settings, as these occurred only at the elementary level.

During classroom observations, the observer constructed a classsroom narrative. He or she took extensive field notes of the lesson presentation, transcribed classroom dialogue, and recorded events that impacted the target student. The lines of the classroom narrative were numbered. Whenever possible, copies of materials used in class were

collected.

Hallway and cafeteria narratives were recorded directly onto hallway and cafeteria outline forms, described below. Because of the difficulty of writing while walking, hallway notations were made as convenient during or at the end of the day's observations.

Following the observations, classroom narratives and data related to target student social competence across classroom, hallway, and cafeteria settings were summarized. These summaries provided evidence of trends in the data worthy of analysis. Narratives were used for coding.

Outline Development. The larger research project, of which this investigation was a part, was begun by developing three outlines to structure classroom, hallway and cafeteria observations of the target students and the instruction they received. These outlines served to identify categories of interest and to remind observers of the variables they would need to consider during the observation process. In this way, the outlines provided structure to the classroom, hallway, and cafeteria narratives.

The outlines were developed by a research team. As described by Wasser and Bresler (1996), each brought different perspectives and areas of expertise. All five were experienced teachers; across members' careers, the group's experience included teaching at preschool, elementary, middle, high school and university levels, in general and special classes. Further, one team member was an experienced school psychologist and three were school psychology graduate students. As noted by Wasser and Bresler, such heterogeneity fosters understanding of the complexity of the educational and social

processes of interest.

Classroom Outline. For the classroom outline, the team reviewed several existing observations systems that had been used previously with special education students: The Instructional Environment Scale (Ysseldyke & Christenson, 1987); Student Observation of Beginning Reading-Revised, (Bryant, Gelzheiser & Meyers, 1987); CISSAR (Stanley & Greenwood, no date). We also canvased each other to identify, based on our experience, additional important aspects of instruction. After several revisions, the classroom outline was then tested in trial observations in another school district. The classroom outline was revised eleven times, in efforts to insure that it was comprehensive, but not redundant, and that it focused on observable indicators of the constructs of interest.

The classroom outline was divided into three categories: lesson, teacher and students. Each category contained a number of more specific topics which were clarified by direct questions. The classroom outline was general enough to be suitable to diverse grade levels and subject areas.

Many portions of the classroom outline are relevant to the larger study and not the questions of interest here. Portions of the classroom outline's lesson section addressed the teaching strategies that teachers used to foster peer interaction. These included descriptions of the lesson goals, and whether those goals explicitly or indirectly addressed communication or cooperation skills; examples of lesson activities that fostered outcomes such as speaking ability, team work, or social skills; descriptions of lesson formats such as lecture, student independent work, or small groups; and evidence of peer collaboration

such as peer or cooperative group projects. Portions of the classroom outline's student section addressed the social characteristics of the target student: descriptions of how students worked in groups; evidence of group membership before or after class and during the process of selecting activity-group members; examples of class members cooperating with one another; and evidence of target student isolation, through seating, differential treatment by a teacher or aide, or lack of participation in routine classroom activities. The classroom outline's teacher characteristic section was not relevant to the present research.

Hallway and Cafeteria Outlines. The research team also developed outlines for hallway and cafeteria observations. The hallway outline asked the observer to record target student behavior and peer interactions during transition times outside the classroom to identify whether these transitions included direct peer interactions. The cafeteria outline asked the observer to note where and with whom the target student ate lunch and summarized general peer interactions during this portion of the student's day.

Reliability of Classroom, Hallway, and Cafeteria Narratives. To ensure the comparability of classroom, hallway, and cafeteria narratives across observers, paired observations were conducted. Prior to data collection, and in elementary and secondary schools not a part of this study, systematic combinations of two observers recorded independent narratives of the same class, and in hall and cafeteria settings. Classroom narratives were then reviewed line-by-line by the observers and faculty, and judged on the completeness of dialogue and accuracy of description of lesson, teacher, and student. This process was repeated until the research team concluded that both observers agreed in the

way they recorded major lesson features, teacher behavior, treatment of the target student, and dialogue. A similar process was used for hallway and cafeteria narratives.

Consistent with a participant/observer tradition, we did not seek inter-rater reliability during the observation process. As observers became more knowledgeable about the students, teachers, and schools they were observing, we expected them to disagree with any "visiting"observer who lacked their experience and insight. Weekly meetings of the three observers were held to resolve any problems related to observations and narratives. Narratives were triangulated in two ways: 1) repeated observations of the same teachers and students and 2) observation narratives were compared to interview responses.

Reduction of Observation Data

Classroom Observation Summaries. Given their scope and large number, it was necessary to summarize classroom narratives. We constructed classroom observation summaries, which were then analyzed to determine trends in the data worthy of further analysis.

Each classroom narrative was summarized using the categories of interest from the classroom outline. The classroom observation summary included reference to lines in the classroom narrative which served as the data source. Observers worked from the classroom narrative to the classroom observation outline, and from the classroom observation outline to the classroom narrative, to ensure that all events and categories were summarized. Once a target student had been observed for five days, the five

classroom observation summaries of each class were than summarized utilizing the same categories. The resulting final classroom summaries characterized instruction, teacher and students.

Reliability of Classroom Observation Summaries. Paired observations allowed comparisons of different observers' classroom observation summaries. Paired observations and summaries were conducted until the research team judged that classroom observation summaries were comprehensive (they included all aspects of the narrative) and accurate (all information was recorded on the appropriate portion of the summary outline). During data collection, weekly meetings of observers were held to resolve any problems related to creation of classroom observation summaries. Reliability of classroom observation summaries was desired for convenience of coding. However, all coding decisions were made using classroom narratives.

Overall Student Social Characteristics. During the data collection phase, an outline was developed to integrate observational data from classroom, hallway, cafeteria settings that were relevant to the social skills of the target student. The overall student social characteristic outline reflected the research teams's knowledge of domains covered by existing social ratings. The overall student social characteristic outline was limited to behaviors that observers had seen exhibited in the target students and which observers were confident could be reliably coded. Domains included the target student's peer interactions, observed social skills with peers and observed friendships. Following a series of questions on the overall student social characteristics outline, the observer described

peer interactions, noted evidence of friendships, cited evidence of target student membership in informal peer groups, described how and if the target student initiated interactions with peers and provided a general description of the students' communication skills.

The overall student social characteristics summary was written after all of the student observations were completed. The observer reviewed his or her notes, and wrote a one to two page narrative that summarized student social functioning and provided illustrative examples of the phenomena of interest.

Reliability of the Overall Student Social Characteristics Summary. The overall social characteristic summary relied upon the observers' familiarity with the target student, gained through five full days of observation. Thus, we used qualitative strategies to ensure reliability: repeated observations of the student across time and settings; and triangulation of observation data with teacher and student interviews. To further ensure reliability, we restricted the summary to domains that experience indicated we could observe. To ensure consistency across sites, the research team met to clarify the constructs of interest, discuss problems, and compare student social characteristics summaries.

Coding of Observation Data

Teaching Activities that Foster Social Interaction. After several revisions, a coding system was devised to code teaching activities that promoted or discouraged social and academic interactions between the target students and their general education peers.

Categories were defined on the basis of activities observed and recorded in classroom narratives; that is, categories emerged from the data. The validity of these variables is documented by their similarity to those reported by Salisbury et al. (1995). As indicated in Table 2, the coding of classroom narratives distinguished two measures of target student inclusion in or isolation from classroom activities (similar treatment, see variables 23-25 on Table 2; and participation, 26-28); three teacher-mediated instructional strategies (cooperative activities, academic peer interactions, and enhancement of interaction skills, 29-37); and one measure of within class opportunities for peer to peer interactions (social opportunity, 39-41). Table 2 defines all variables.

Insert Table 2 about here

Target Student Peer Interactions. Similarly, a coding system was developed to code data related to target student peer interactions. These data were recorded in hallway narratives, cafeteria narratives, and overall student social characteristic summaries. The appropriateness of target student peer interactions and social skills was coded. These are variables 9-12 in Table 2, where they are defined.

Reliability of Coded Observation Data. Classroom, hallway, and cafeteria observation data were coded by one graduate student (who was not an observer) to ensure consistency across settings. Several qualitative strategies were used to insure the reliability of this coding. Coding began with classroom observation summaries and overall

student social characteristics summaries, but was verified by returning to the narratives. Most importantly, observers reviewed every coding decision and provided supplemental information to remedy any discrepancies or omissions. This approach was used instead of inter-rater reliability, in order to capitalize on the observer's superior knowledge of these classes and students.

Teacher Interviews

Instrument Development. During the process of developing the classroom, hallway, cafeteria, and overall student social characteristics outlines, we identified aspects of instruction and student social integration that were important, but that were better assessed through teacher and/or student interviews. Using these concepts as well as other themes, the structured teacher interview questions were developed by members of the research team. Among other topics, interview questions required teachers to describe the target student's functioning within the classroom setting. They were asked if, to their knowledge, the target student participated in extracurricular activities. Teachers were also asked to share their view on the role of inclusion in supporting social relationships for students with disabilities.

Interview Procedures. All of the observed teachers were interviewed individually. The interviews occurred during the spring semester and lasted roughly one hour. All teacher interviews were tape recorded and transcribed.

Coding. A coding system was devised to summarize teacher interview data. Categories were based on the information found in the data and reflected teachers'

viewpoints and comments. As indicated in Table 2, teacher judgments of target student peer interactions, classroom behavior, and participation in extracurricular activities were coded (see variables 16-22). Also coded was the teachers' view of the relationship between inclusion and social relationships, variables 42-44.

Reliability of Coding. Transcribed teacher interviews were coded by the second author. The first author independently coded 20% of these teacher interviews. Inter-rater agreement was 97%.

Student Interviews

Instrument Development. All members of the research team participated in the development of the structured student interview questions. Students were asked about friendships, types of friends, and free time activities.

Interview Procedures. Student interviews were conducted individually by the graduate student who had observed that target student's instructional program. They occurred during June and lasted approximately 20 minutes. Questions were modified as needed, based on the student's functional level.

Student interviews were not taped, in order to make students feel more comfortable. The interviewer took extensive notes and then typed these notes.

Coding. A coding system was developed to profile the number and type of target student friendships and group membership. For type of friends and group membership, student interview responses were compared to the observational data provided on the overall student social characteristics summaries. If these two sources disagreed, the

observational data was used to make the coding judgment. Specific variables are described in Table 2, variables 13-15.

Reliability of Coding. All of the student interviews and summaries were than coded by the second author. Because of the role played by the overall student social characteristics data, reliability was obtained by having observers review all coding decisions.

Individual Education Plans

Procedures. A final step in data collection was analysis of the student's IEP. A copy was obtained from school files. IEPs were not reviewed prior to observations or interviews, so that data collection would not be influenced by knowledge of the student's present level of function or goals related to peer interaction.

Coding. Two researchers independently coded student present level of functioning (variable 7, Table 2) and interaction goals (variable 8). Coding of level of functioning was straight-forward, as several schools used checklists containing items such as "interacts appropriately with peers" or "needs to develop appropriate interactional patterns." In all other cases, text referred explicitly to peer relationships or social development, e.g., "target student has difficulty with peer and adult relationships"; "target student has little interest in interacting with peers"; or "target student needs to further develop social skills. She is more comfortable with adults than with her peers." IEP goals were similarly explicit. Also recorded from the IEP were students' sex, disability, placement, whether or not they had been assigned a one-to-one aide, school level and district (variables 1-6).

Raters obtained 100% agreement in coding IEP data.

Quantification of Coded Data

A final step before analysis was to assign a quantitative value to all coded data. For each variable, the assigned ratings were ranked from least to most appropriate, as indicated in Table 2. The most appropriate rating was assigned the highest numerical value.

Results

This research addressed three questions. Did the IEP adequately characterize student peer interaction skills (that is, was the IEP corroborated by independent observations of pupil social competence)? Was there a discernable relationship between students' present level of functioning and goals related to peer interactions, and the use of teaching strategies that might foster peer interaction? To what extent did general and special education teachers employ strategies designed to foster peer interaction?

To answer the first two questions, data were subjected to a principal components analysis, with follow-up analyis. On the principal components analysis, loading of IEP Peer Interaction Level and IEP Interaction Goals *with* the independent measures of student social competence would document the accuracy of the peer interaction portion of pupil IEPs. We then divided student into two groups, based on the IEP:appropriate and inappropriate peer interaction skills. These two groups were contrasted, using the independent social compence variables, to further clarify the relationship between the IEP and the other ratings of social competence. Similarly, a loading of IEP Peer Interaction

Level or IEP Interaction Goals *with* measures of teaching strategies designed to foster peer interaction would indicate that instruction aligned with pupil interaction need, as indicated on the IEP. Or, if the independent measures of social competence aligned with instruction, we could conclude that instruction aligned with pupil needs, as specified by the observer and/or teacher ratings.

The last question was descriptive. In tabular form we present and contrast special and general education teachers' use of strategies designed to foster peer interaction.

Principal Components Analysis

Principal components analysis was selected for several reasons. Principal components methods enabled us to address the research questions in a parsimonious fashion, as they allow simultaneous examination of many variables and the interrelationships among them. Principal components methods are exploratory. This analysis would allow relationships among the IEP present level of functioning, other student social competence measures and/or instruction to emerge in the analysis.

Most importantly, principal components methods have recently been shown to be appropriate for studies such as this one, where the number of subjects is small and the number of variables relatively large. Specifically, recent work has identified novel strategies for modifying common factor methods for small samples (Pruzek & Lepak, 1992). An interesting finding of this work is that these idealized common factor methods for small samples are generally well approximated by principal components analysis, particularly when the number of variables exceeds 15-20. When the population structures

are relatively clear, then small sample principal components analysis (with samples well under 50) can routinely recover these structures (Pruzek, 1988).

All identified variables were entered into a principal components analysis to identify significant dimensions related to the peer interactions and instruction. Missing values were replaced by means. Examination of breaks in eigenvalues confirmed the presence of two dimensions in the data, which were best described as one major dimension and another smaller cluster of variables. These two components accounted for 36% of the variance in the data, a reasonable proportion given the sample size. Variable loadings on these two components are summarized in Table 3. Given the sample size, we used .40 as a cut-off for variable loading.

Insert Table 3 About Here

Question 1: IEP Adequacy

As indicated in Table 3, the first component of the principal components analysis documented the adequacy of the IEP's characterization of present level of functioning and goals related to peer interaction. A variety of independent ratings of social competence loaded with, and thus corroborated, the IEP variables, *IEP Peer Interaction Level* and *IEP Interaction Goals*. We called this first dimension Student Peer Interactions and Behavior.

Specifically, *IEP Peer Interaction Level* and *IEP Interaction Goals* were

associated with all of the observed measures of social competence (*Observed Hallway Interactions, Observed Cafeteria Interactions, Observed Peer Interactions*, and *Observed Social Skills*). Also associated here were the measures of social competence derived from the student interviews and overall student social characteristics summaries (*Self-Reported Friendships, Peer-Group Membership*, and *Type of Friends*). Also clustering here were participation in *Extracurricular Activities* and two of the general education teachers' ratings of target student peer interactions and behavior *(SAT-Rated Peer Interactions* and *CAT-Rated Behavior*). Other teacher-rated variables which one might have expected to load on the Student Peer Interactions and Behavior dimension did not load on either dimension, because they did not discriminate (*CAT- and SET-Rated Peer Interaction*; *SET- and SAT-Rated Behavior*). While the student variables of *Disability* and *One-to-One Aide* were associated here, *Sex, Special Education Placement*, and *School Level* did not load on either dimension.

Several variables related to the target students' isolation from peers in the classroom also loaded on the Student Peer Interactions and Behavior dimension. These were *Observed Similar Treatment/SEC, -/CAC, -/SAC*; and *Observed Participation/SAC*.

Follow-up Descriptive Analysis. Follow analysis was conducted to clarify and confirm the nature of the relationship between *IEP Peer Interaction Level* and the other variables found within the Student Peer Interactions and Behavior dimension. We divided the target students into two groups, those whose IEP Peer Interaction Level was judged to be appropriate, and those judged sometimes or always inappropriate. We then

contrasted these two groups, using their ratings on the other, independent measures of social competence. This analysis is summarized in Table 4, which lists the percentage of pupils in each group given the highest rating for that variable. Table 4 documents differences between the appropriate and inappropriate Peer Interaction groups on almost all social competence measures. The text that follows provides illustrative examples of student functioning that was coded at different levels.

Insert Table 4 about here

Table 4 indicates dramatic differences between the appropriate and inappropriate Peer Interaction groups, in their *Hallway Interactions*. Examples of age-appropriate Hallway Interactions included target students who were observed to walk with friends, to greet friends as they passed in the hall, or to seek out friends in the hallway. An isolated student, in contrast, was observed to walk alone in the hall with head down, staying close to the wall. Another isolated middle school student was observed in the hallway to kick, punch, shove, pinch and verbally harass other students in a laughing fashion, as if to impress peers rather than in anger or frustration.

In the *Cafeteria*, age-appropriate students were observed to eat surrounded by peers, or to eat quickly and rush outside to the playground with friends. One negotiated a new assigned seat to be with friends rather than other special education students. One isolated student was observed to eat at the end of the table with one other special

education student, but to rarely speak to that student. Another isolated student was observed to sit amidst other students, not talking to anyone, just watching others.

Table 4 indicates the groups differed in the age-appropriateness of their *Observed Peer Interactions*. Appropriate students were frequently observed in extended conversations with peers. In contrast, one student's peer interactions were categorized as inappropriate as he exhibited virtually no peer contact. Another student, categorized as somewhat appropriate, was seen to have only two friends with whom she interacted. While she seldom interacted with peers, she did interact with adults.

Table 4 confirms that the groups differed in *Observed Social Skills*. Age-appropriate students were observed to appropriately initiate interactions with peers, and were the recipients of initiations by others. One student viewed as lacking social skills was described as ignored by others, passive, quiet, and always the last in the class to join a group. Students whose social skills were limited included one middle school student who complained to the cafeteria aide when peers deliberately chewed with their mouth open, and another middle school student who talked about his cat while the others in his group were discussing condoms.

Table 4 reveals that *Peer Group Membership* was reported more frequently for the appropriate group. Evidence of peer group membership included eating with the same students each day at lunch, seeking out the same students in the hall, making after school or weekend plans with a group, skipping class with a group, or consistently choosing to work with certain students in student-choice work groups. Indicators of a lack of peer

group membership included always being observed to be alone, or with just one individual. Other students who did not belong to a group were teased or harassed by peers.

In Table 4, the two groups appeared comparable in the number of *Self-Reported Friendships* and *Type of Friends*. However, Self-Reported Friendships for both groups were generally less in number than has been reported for age-appropriate peers (Feiring & Lewis, 1989). Socially appropriate students were more often reported to participate in *Extracurricular Activities*, which included football, wrestling, baseball, art club, school dances, and church activities.

Special Area Teachers-Rated Peer Interactions in a fashion that was consistent with the IEP. Students judged to have age-appropriate peer interactions were described as "well liked by peers", or "socially at ease, sought out as a friend." In contrast, one teacher reported that a student with inappropriate peer interaction skills "says students call her names." Another noted that "he doesn't interact a great deal with others in class." Similarly, a special area teacher commented " I'm not sure she has social relations with the others in class."

Table 4 shows that *Content Area Teachers-Rated Behavior* differed for the two groups. A student with age-appropriate behavior was described by a content area teacher as "like any other student in the class"; another teacher noted that the target student "has learned successful ways to behave." Content area teacher comments about students rated as exhibiting inappropriate behavior included: "he is confrontational at times. He frequently runs into trouble in the cafeteria, and then is late to class." Another

inappropriate student was characterized as "very aggressive. She makes nasty, cutting remarks."

Referring back to Table 1, the reader will note that students deemed to have appropriate peer interaction skills tended to be identified with a milder *Disability* (speech/language impaired, learning disabled), while those viewed as inappropriate were split across mild and more severe disabilities. Pupils with inappropriate peer interaction skills were more likely to be assigned a *One-to-One Aide*.

Inspection of data indicated that *Observed Similar Treatment*, and *Observed Participation/SAC* loaded on the Student Peer Interaction and Behavior dimension because of their relationship to a mediating variable, whether or not a student had been assigned a *One-to-One Aide*. These relationships are documented in Table 5.

Insert Table 5 about here

Table 5 indicates that pupils were dramatically less likely to receive *Similar Treatment* by general and special education teachers if they had been assigned an aide. For example, one student in math class worked with his aide in the back of the room at a separate table during all observations. This student used a different curriculum and was not observed to interact with the math teacher. Students with the most severe disabilities and documented social skills deficits tended to receive this type of intensive support.

Similarly, students with aides showed less *Participation* in special area activities.

For example, one student elected not to attend gym class, and was observed to storm out of another class in anger. Another student was observed to watch her peers in music class, but not to participate.

Observational data indicated that when students were assigned an aide, opportunities for social interactions were frequently limited by the constant presence of an adult (see Table 5). In the *Hallway*, one student with an aide was observed to walk with the aide directly at his side; another walked on his own, under the aide's supervision. One student was removed from each class 5 minutes early, and was thus always in the hallway when no peers were present. When one student's aide was absent, the observer (rather than a high school peer) was asked to transport the student to her classes. On a more positive note, one student arranged to have a friend in her homeroom wheel her to her first two classes.

Students with aides were often similarly isolated from peers in the *Cafeteria*. In one high school, the target student ate with other special education students at the front tables. An aide stood over this table while students ate, then cleaned the trays and told students when to return to class. One student was removed from lunch 5 minutes early each day by her aide; another was brought to lunch 15 minutes early.

Only one aide was observed to physically distance herself from the target student, and to encourage the student to interact with her peers.

Question 2: The Alignment of Instruction with Peer Interaction Level

The two, separate components obtained using Principal Components Analysis

documented that instruction did not align with pupils' peer interaction needs as identified on the IEP (See Table 3). That is, Student Peer Interaction and Behavior formed one component. A second, distinct cluster of variables was characterized as Teaching Activities that Foster Peer Interaction, because the majority of variables related to teachers' practices clustered here.

As Table 3 indicates, neither *IEP Peer Interaction Level* nor *IEP Interaction Goals* loaded on the second component. The Teaching Activities that Foster Peer Interaction cluster of variables consisted of the teaching strategies of *Observed Cooperative Activity* (in all settings), *Observed Academic Peer Interactions* (in all settings), and *Observed Interaction Enhancement* (in special area classes). Thus, students' participation in these activities to foster peer interactions was not related to their present level of functioning or goals in peer interaction.

Also loading on the second component were *District*, and special area teachers' views about inclusion and social relationships (*SAT-Rated Inclusion*). These loadings indicated that teachers in the high-inclusion district were more likely to use teaching activities that foster peer interactions, and that these strategies were associated with special area teachers' view of inclusion.

Observed Similar Treatment by content area teachers loaded here, but negatively. This indicates that teachers who used *Observed Cooperative Activity* and *Observed Academic Peer Interactions* tended not to treat the target student the same as other students in the class. Some target students were treated differently than their peers during

these observed activities.

A number of variables indicating strategies that teachers could use to foster peer interactions might have been expected to load on the Teaching Activities that Foster Peer Interaction dimension, but did not load with either dimension, probably because they did not discriminate, either due to floor effects, i.e., many low ratings (*Observed Social Opportunity/SAC, -/CAC, -/SEC, Observed Interaction Enhancement/CAC, -/SEC*) or ceiling effects, i.e., many positive ratings (*Observed Participation/CAC, -/SEC*). Similarly, two of the variables related to teachers' views of whether inclusion fostered social relationships (*SET-Rated Inclusion, CAT-Rated Inclusion*) were not associated with either dimension, because of ceiling effects.

Follow-up Correlational Analyses. To further clarify the relationship between the two peer interaction variables (*IEP Peer Interaction Level* and *IEP Interaction Goals*), and the four teaching strategies (*Observed Cooperative Activity, Observed Academic Peer Interactions, Observed Interaction Enhancement, Observed Social Opportunity*) across the three settings, a series of correlations were computed. Only one correlation of the twenty-four was significant at the .05 level, as would be expected by chance. Thus, we concluded that teachers were not guided by the target students' peer interaction needs or goals in their decision whether to use particular teaching strategies.

Question 3: Extent of Teachers' Use of Activities to Foster Peer Interaction

We examined the extent to which special education, content area, and special area teachers used four activities to foster peer interactions of students with disabilities. (A

preliminary analysis contrasted the three building levels, but found no differences within teacher groups at elementary, middle and high school levels). Table 6 reveals that overall, these activities were not widely used by any teacher group.

Some differences were noted, suggesting greater use of strategies to foster peer interaction by general education teachers. The two strategies that can be used to foster both academic and social growth (*Observed Cooperative Activity* and *Observed Academic Peer Interactions*) occurred most often in general education classes, and only rarely in the special education setting. The remaining two strategies, which are more informal and foster only social outcomes (*Observed Interaction Enhancement* and *Observed Social Opportunity*) appear to have been used comparably by the three groups of teachers.

Examples of *Cooperative Activities* included students completing models of temporary housing structures in a small group, and students presenting group projects in music class. An example of *Academic Peer Interactions* was a student calling upon a peer to read the next selection. Teachers who did not employ these strategies instead relied upon activities such as lectures and individual work. For *Interaction Enhancement* teachers taught and/or reinforced students taking turns, sharing materials during group projects, and raising their hands rather than interrupting their peers. *Social opportunity* was provided by teachers who allowed students to chat before class or during projects such as artwork. Social opportunity was also provided when students were expected to travel to the resource room with a peer.

Insert Table 6 about here

Discussion

This study makes several contributions to our understanding of the provision of instruction related to peer interactions for students with disabilities. Direct observations of instructional practices and peer interactions in classroom, hallway, and cafeteria settings, as well as teacher and pupil interviews, and pupil IEPs provided a multi-dimensional perspective of the relationship between peer interaction needs and educational practices.

A first and positive finding of this research was that IEPs accurately described the peer interactions of students with disabilities. Independent measures by observers, the students themselves, and certain teacher measures were generally consistent with the IEP's statement of present level of functioning and peer interaction goals. This finding is an important one, because previous examinations of IEPs, focused on the academic portions, found the IEP often to be inaccurate (Smith, 1990).

These differences in findings are probably a function of the methodologies employed. In previous studies, it was typical for each part of the IEP to be compared to a single criterion, and many parts were judged. In this study, a single competency, peer interactions, was compared to multiple independent indicators. Across these multiple indicators, the IEP's report of peer interactions was found to be generally valid, although

it may have appeared less valid if only a single criterion variable had been used. Researchers studying IEP accuracy may wish to employ a multi-variate design in the future.

Another critical finding of this research was that providing accurate information on the IEP regarding level of functioning and goals regarding peer interaction was not sufficient to ensure that instructional practices were designed to meet those needs. Students whose IEPs identified peer interaction needs did not receive greater access to instructional strategies that afford peer interaction. While some teachers did provide opportunities for cooperative learning activities and also provided support for the development of interaction skills, students lacking appropriate peer interaction skills were not necessarily members of these classrooms. Further, content area teachers who offered these activities tended to treat the target student differently than his/her peers. This lack of congruence between IEP goals and teaching practices was true across special education, content area, and special area settings, for students with a range of disabilities.

Recent court decisions argue that inclusionary placements are preferred, in order to foster social interactions between students with disabilities and their normally achieving peers (VanDyke et al., 1995). Our data provide some support for this preference. Teachers in general education settings were observed to make greater use than special education teachers did of cooperative activity and academic peer interactions. It is especially noteworthy that special education teachers, who were presumably involved in writing pupil IEPs, did not modify instruction on the basis of the individual's peer

interaction needs, and indeed were observed to be the least likely to use teaching strategies to foster peer interactions.

However, our data also suggest that the general education classroom does not systematically foster peer interactions for students with disabilities. Rates of use of teaching strategies to foster peer interaction were generally low, and not aligned with pupil IEP goals. Clearly, much more can be done foster growth in peer interaction skills in general and special education classrooms.

One interesting finding is that nearly all special education and content area teachers were positive when they were asked their views of the relationship between inclusion and pupil peer interactions. Since their use of teaching strategies to foster peer interactions was low, it seems that these teachers saw proximity as sufficient to foster peer acceptance. These data suggest that many teachers need to be taught the importance of deliberate instruction to foster peer interactions for students with disabilities.

The only factor related to use of strategies to foster peer interactions discerned in this study was school district. Teachers in the district that integrated more students with disabilities made greater use of these instructional strategies. It is not known whether this was a consequence of greater experience with students with disabilities, staff development, district philosophy, or chance. Further research is needed to explore this relationship.

We identified one barrier to the development of peer interaction skills for students with disabilities: the assignment of a one-to-one aide. Many students with inappropriate peer interaction skills were assigned an aide, and the presence of an aide appeared to limit

opportunities for peer interaction. Assignment of an aide was also associated with differential treatment of the pupil by the teacher, typically limiting interaction with all individuals except the aide. Our data did not explore the reasons for this relationship, but do suggest that awareness and training are needed, if aides are to foster, rather than inhibit, growth in the domain of peer interactions.

Several limitations to the present study should be noted, and should serve as a direction for future research. Because of the intensive observations employed here, the sample in this study was small, and only two school districts were represented. Further research is needed with more comprehensive samples to replicate these findings. Because of our interest in comparing elementary and secondary students, we did not observe pupils in play ground settings. Future research is needed to extend our findings to that important social setting.

Finally, the present study did not examine whether teachers were aware of pupil peer interaction needs, as specified on the IEP, and the extent to which the IEP directly influenced their instructional practices. Such research would provide needed clarification to the findings reported here.

Table 1

Characteristics of Groups with Appropriate and Inappropriate Present Level of Functioning in Peer Interactions

Characteristic	Appropriate (N=12)	Inappropriate (N=10)
Male	58*	60
Disability		
Speech Impaired	25	10
Learning Disabled	58	40
ADHD	8	0
Emotionally Disturbed	0	20
Orthopedically Impaired	8	20
Multiply Handicapped	0	10
Special Education Placement		
Self-Contained	59	60
Resource	33	40
Related Services Only	8	0
One-to-One Aide	8	40

*percentage of the appropriate group that was male

Table 2
Variable Names, Definitions, Sources and Values

Variable Names	Description(Source)	Range of Values
	STUDENT CHARACTERISTIC VARIABLES	
1. Sex	student sex (IEP)	male female
2. Disability	disability (IEP)	Speech impaired Learning disability ADHD Emotionally disturbed Orthopedically impaired Multi handicapped
3. Special Education Placement	assigned placement (IEP)	self-contained class resource room related services only
4. One-to-One Aide	Assignment of one-to-one aide (IEP)	Yes No
5. School Level	building level (IEP)	elementary middle high school
6. District	school district (IEP)	low inclusion high inclusion

SOCIAL COMPETENCE VARIABLES

7. IEP Peer Interaction Level	Current level of functioning in peer interaction (IEP)	Inappropriate w/peers Sometimes appropriate Appropriate w/peers
8. IEP Interaction Goals	Current peer or social interaction goals (IEP)	Behavior & interaction goals Peer interaction goals only Behavior goals only No social goals
9. Observed Hallway Interactions	Age appropriateness of observed peer interactions in hallway (hallway observation)	Isolate; no peer interaction Limited interactions Age-appropriate interactions
10. Observed Cafeteria Interactions	Age appropriateness of observed peer interactions in cafeteria (cafeteria observation)	Isolate; no peer interaction Limited interactions Age-appropriate interactions
11. Observed Peer Interactions	Age appropriateness of observed peer interactions (overall student social characteristics summary)	Inappropriate with peers Sometimes appropriate Appropriate with peers
12. Observed Social Skills	Age appropriateness of social skills (overall student social characteristics summary)	Below average; lacking Limited, but sometimes adequate Age-appropriate
13. Self-Reported Friendships	Number of self-reported friends (student interview)	None 1-2 3 or more
14. Peer-Group Membership	Evidence of belonging to a peer group (student interview and overall student social characteristics summary)	None Observed as member of some peer group
15. Type of Friends	Type of friends (student interview and overall student social characteristics summary)	None SE identified peers only Unidentified peers only Both/undetermined

16. Extracurricular Activities	Target student participation in extracurricular activities (combined teacher interviews)	No/uncertain Yes
17. SET-Rated Peer Interactions 18. CAT-Rated Peer Interactions 19. SAT-Rated Peer Interactions	Target student peer interactions (teacher interview)	Inappropriate Sometimes Appropriate Appropriate
20. SET-Rated Behavior 21. CAT-Rated Behavior 22. SAT-Rated Behavior	Target student classroom behavior (teacher interview)	Inappropriate Sometimes Appropriate Appropriate

TEACHING VARIABLES THAT FOSTER OR INHIBIT PEER INTERACTION

23. Observed Similar Treatment/SEC 24. Observed Similar Treatment/CAC 25. Observed Similar Treatment/SAC	Amount of teacher interaction and degree of similarity in teacher treatment of target student and peers (classroom observation)	Ignored; no interaction Limited direct interaction; may include some special attention Treatment same as classmates
26. Observed Participation/SEC 27. Observed Participation/CAC 28. Observed Participation/SAC	Target student participation in assigned class activities (classroom observation)	Percentage of observed classes
29. Observed Cooperative Activity/SEC 30. Observed Cooperative Activity/CAC 31. Observed Cooperative Activity/SAC	Teacher planned and implemented cooperative small group activities (classroom observation)	Percentage of observed classes
32. Obsvd Academic Peer Interactions /SEC 33. Obsvd Academic Peer Interactions /CAC 34. Obsvd Academic Peer Interactions /SAC	Peer to peer academic interactions, e.g., partner spelling review (classroom observation)	Percentage of observed classes

35. Obsvd Interaction Enhancement/SEC 36. Obsvd Interaction Enhancement/CAC 37. Obsvd Interaction Enhancement/SAC	Teacher praise or instruction for interaction skills such as turn taking, asking peer assistance, politeness with peers (classroom observation)	Percentage of observed classes
39.Observed Social Opportunity/SEC 40.Observed Social Opportunity/CAC 41.Observed Social Opportunity/SAC	Peer to Peer social interactions, such as conversation before class, non-academic interactions during class (classroom observation)	Percentage of observed classes
42.SET-Rated Inclusion 43.CAT-Rated Inclusion 44.SAT-Rated Inclusion	Teacher belief that inclusion supports social relations for target students (teacher interview)	No Yes

Note: SET=Special Education Teacher
CAT=Content Area Teacher
SAT=Special Area Teacher

SEC=Special Education Class
CAC=Content Area Class
SAC= Special Area Class

Table 3

Loadings of Variables on Two Principal Components

Variable	Component	
	1	2
IEP Peer Interaction Level	.87	-.09
IEP Interaction Goals	.81	-.39
Observed Hallway Interactions	.72	.08
Observed Cafeteria Interactions	.84	.23
Observed Peer Interactions	.81	-.11
Observed Social Skills	.66	.07
Self-Reported Friendships	.60	.33
Peer Group Membership	.73	.16
Type of Friends	.66	-.22
Extracurricular Activities	.69	.02
SAT-Rated Interactions	.63	.39
CAT-Rated Behavior	.38	-.66
Disability	.39	-.31
One-to-One Aide	.63	-.24
Observed Similar Treatment/SEC	.33	-.13

Table 3, Continued

Observed Similar Treatment/CAC	.60	-.63
Observed Similar Treatment/SAC	.70	-.69
Observed Participation/SAC	.36	-.34
Observed Cooperative Activity/SEC	.27	.66
Observed Cooperative Activity/CAC	-.15	.60
Observed Cooperative Activity/SAC	-.13	.76
Observed Academic Peer Interactions/SEC	.29	.61
Observed Academic Peer Interactions/CAC	.17	.62
Observed Academic Peer Interactions/SAC	.19	.60
Observed Interaction Enhancements/SAC	.12	.74
Diversity	.14	.18
SAT-Based Inclusion	-.69	.17

Note: CAT=Common Area Teacher CAC=Common Area Class

SAT=Special Area Teacher SAC=Special Area Class

SET=Special Education Teacher SEC=Special Education Class

Table 6

Percentage of Appropriate and Inappropriate IEP Peer Interaction Groups Receiving Highest Rating on Social Competence Measures

Social Competence	Appropriate IEP Peer Interactions	Inappropriate IEP Peer Interactions
Observed Hallway Interactions	68	18
Observed Cafeteria Interactions	89	36
Observed Peer Interactions	83	39
Observed Social Skills	67	18
Self-Reported Friendships	42	38
Peer Group Membership	92	68
Type of Friends	83	56
Extracurricular Activities	92	58
SAT-Rated Peer Interactions	72	57
CAT-Reported Behavior	73	39

Table 1

Percentage of Aide and Non-Aide Groups Receiving Ratings of Similar Treatment, Full Participation, and Age-Appropriate Social Competence

	One-to-One Aide (N=5)	No Aide (N=17)
Observed Similar Treatment/1:1 Aid	20	81
Observed Similar Treatment/SAC	0	94
Observed Similar Treatment/SEC	20	88
Observed Participation/SAC	80	88
Observed Hallway Interactions	0	47
Observed Cafeteria Interactions	0	88
Observed Peer Interactions	60	76
Observed Social Skills	20	47

Table 6

Percentage of Teacher's Classes Observed to Use Instructional Strategies to Promote Peer Interactions

Strategy	SE Class N=20	CA Class N=19	SA Class N=22
Observed Cooperative Activity	03	20	30
Observed academic Peer Interactions	06	17	19
Observed Interaction Enhancement	27	18	21
Observed Social Opportunity	25	26	37

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